THE IMPACT OF STEM-BASED LEARNING ON STUDENTS' PROBLEM-SOLVING SKILLS AND SCIENCE SELF-EFFICACY

RESEARCH PAPER

Submitted as Requirement to Obtain Degree of *Sarjana Pendidikan* in
International Program on Science Education (IPSE) Study Program

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2020

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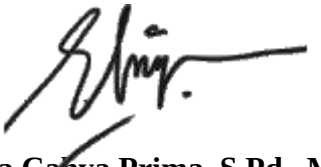

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Abstract

Globalization has an impact on the increases in population growth. It is directly proportional to the problem of environmental pollution. However, the efforts to prevent or reduce these problems have not been optimal in Indonesia. The lack of learning related to problem-solving from an early age. A learning approach is needed that can make students aware and participate actively in this serious problem in everyday life. This study aims to investigate the impact of STEM learning on students' problem-solving skills and science self-efficacy in environmental pollution topics. The method used in this research is pre-experimental. The sample consists of 33 7^{th} grader students from several schools in West Java and Central Java. The result shows that there is a low improvement in students' problem-solving skills based on the N-gain value of 0,306. The highest improvement in this variable is shown in the making justification aspect with the N-gain 0,44. The least improved aspect is exploring problems which only result in 0,23. Science self-efficacy results before and after the treatment given obtained N-gain value 0,212. The highest student response for the science self-efficacy result, nearly 70% of students responded positively to the practical work aspect. It is concluded that science learning on environmental pollution topics by integrating science, technology, engineering, and mathematics is can improving problem-solving skills and science self-efficacy. Further research is needed on certain aspects on how STEM learning impacts students' problem-solving skills and science self-efficacy.

Keywords: STEM-based Learning, Problem-Solving Skills, Science Self-Efficacy

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